Seattle Sweetened Beverage Tax Evaluation: Impact on Prices 6-month results

Presented by: Jesse Jones-Smith, PhD, MPH
SBT IMPACT ON BEVERAGE PRICES

THE GOAL
To estimate the impact of the tax on the price of beverages subject to the tax.

THE BASICS
A RETAIL AUDIT PRE and POST TAX IMPLEMENTATION:
In-person surveys of beverage prices stores in Seattle and Comparison Area (Kent, Auburn, Federal Way) before and after tax:

- **PRE-TAX Survey**
  - November 2017

- **Tax starts January 2018**

- **6-MONTH POST-TAX Survey**
  - June 2018
SBT PRICE IMPACT  PRICE PASS-THROUGH

TAX IS LEVIED ON DISTRIBUTORS, UNCLEAR WHETHER DISTRIBUTORS WOULD PASS ON THE COST OF THE TAX TO THE CONSUMER.
Methods & Results
In-person surveys of stores in Seattle and Comparison Area (Kent, Auburn, Federal Way)

Geographically balanced sample with quota from different store types

Surveys done October-November 2017 (pre-tax) and May-July 2018 (post-tax)
SBT PRICE IMPACT DATA COLLECTION

Supermarkets & superstores

Grocery & drug stores

Small stores

Quick-service restaurants

Beverage shops

Warehouses
<table>
<thead>
<tr>
<th></th>
<th>Seattle</th>
<th>Comparison Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall 2017</td>
<td>229</td>
<td>223</td>
</tr>
<tr>
<td>Summer 2018</td>
<td>204</td>
<td>209</td>
</tr>
</tbody>
</table>

89% re-survey rate

90% re-survey rate
SBT PRICE IMPACT \( \text{BEVERAGE CATEGORIES} \)

**BEVERAGE TAX CATEGORIES**

- **Taxed**
  - 7 beverages types
    - Soda
    - juice drink
    - sports drink
    - energy drink
    - bottled tea
    - prepared tea
    - bottled coffee
    - sugary flavor shot

- **Non-taxed**
  - sugar-free
    - 10 beverages types:
      - diet soda
      - 100% juice
      - diet sports drink
      - diet energy drink
      - water
      - Milk
      - powdered sugar-free
      - drink mix
      - bottled unsweetened
      - tea
      - prepared coffees
      - sugar-free flavor shot

- **Non-taxed**
  - sugar-sweetened
    - 3 beverages types:
      - chocolate milk
      - powdered drinks
      - prepared sweetened coffee
SBT PRICE IMPACT KEY VARIABLES

BEVERAGE PRICE

The primary outcome, in **CENTS PER OUNCE**, using the lowest price available on the day the store was surveyed.
THE GOAL
To estimate the impact of the tax on the price of beverages subject to the tax.

THE MODEL
We use a regression-based difference-in-difference model to estimate the degree to which the price of beverages in Seattle changed above and beyond price changes for the same beverages in the comparison area from baseline to six-months post-tax.
RETAIL AUDIT  TAX IMPACT ANALYSES

HOW THE DIFFERENCE-IN-DIFFERENCE MODEL WORKS

Seattle

$2.00
November 2017

$2.35
June 2018

= $0.35
DIFFERENCE IN SEATTLE

Comparison Area

$2.00
November 2017

$2.05
June 2018

= $0.05
DIFFERENCE IN COMPARISON

$0.30
DIFFERENCE-IN-DIFFERENCE

$2.00
November 2017

$2.35
June 2018

= $0.35
DIFFERENCE IN SEATTLE

Comparison Area

$2.00
November 2017

$2.05
June 2018

= $0.05
DIFFERENCE IN COMPARISON

$0.30
DIFFERENCE-IN-DIFFERENCE
SBT PRICE IMPACT PRICE PASS-THROUGH

THE AMOUNT OF TAXED PASSED ON TO CONSUMERS

1.75¢/OZ = 100% PASS THROUGH
SBT PRICE IMPACT RESULTS

OVERALL AVERAGE SEATTLE PRICE PASS-THROUGH RESULTS

1.70¢

The price of taxed beverages in Seattle increased by 1.70 cents per ounce on average, over and above increases in the comparison area.

97%

97% of the tax on average was passed through to Seattle consumers.

THE AVERAGE MASKS IMPORTANT DIFFERENCES BY STORE TYPE AND BEVERAGE TYPE
SBT PRICE IMPACT RESULTS

AVERAGE PRICE PASS-THROUGH BY BEVERAGE TYPE

1.78¢  102%
Pass-through for Seattle soda

1.47¢  84%
Pass-through for Seattle sugar-sweetened teas & sports drinks.

1.11¢  63%
Pass-through for Seattle juice drinks.

1.09¢  62%
Pass-through for Seattle sugar-sweetened Bottled coffee drinks.
<table>
<thead>
<tr>
<th>Store Type</th>
<th>Average Taxed Drink Price Pass-Through</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seattle supermarkets &amp; superstores</td>
<td>1.51¢ (86%)</td>
</tr>
<tr>
<td>Seattle grocery stores &amp; drug stores</td>
<td>1.82¢ (104%)</td>
</tr>
<tr>
<td>Seattle small stores</td>
<td>1.80¢ (103%)</td>
</tr>
<tr>
<td>Seattle quick-service restaurants</td>
<td>1.43¢ (82%)</td>
</tr>
</tbody>
</table>
## SBT Price Impact Results

**AVERAGE NON-TAXED DRINK Price Pass-Through by Store Type**

<table>
<thead>
<tr>
<th>Store Type</th>
<th>Price Pass-Through</th>
<th>Pass-through Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seattle supermarkets &amp; superstores</td>
<td>0.0¢</td>
<td>0%</td>
</tr>
<tr>
<td>Seattle grocery stores &amp; drug stores</td>
<td>0.47¢</td>
<td>27%</td>
</tr>
<tr>
<td>Seattle small stores</td>
<td>0.77¢</td>
<td>44%</td>
</tr>
</tbody>
</table>

*Increase in price in small stores driven by increased price of diet soda, diet energy drinks, and bottled tea*
SBT PRICE IMPACT RESULTS

OVERALL SEATTLE PRICE RESULTS

Applying the average 1.70 cents per ounce increase to

20 oz sugar-sweetened drink

$1.99 Pre-tax
$2.33 Post-tax

12-pack of sugar-sweetened drinks

$3.15 Pre-tax
$5.59 Post-tax
SBT PRICE IMPACT RESULTS

PRICE TAG LABELING STRATEGIES

45%
No tax mention on price tag

24%
Tax price included in price on price tag, and identified as an add-on

11%
Tax price included in price on price tag, *not* identified as an add-on

17%
Price tag says tax will be added at the register but does not include add-on price on tag
SBT PRICE IMPACT LIMITATIONS

Although we surveyed a large sample of beverages of various sizes, we did not measure all beverages.

We have only a sample of stores rather than a census of all stores.

We did not include some popular stores such as Whole Foods, Trader Joe’s, and PCC because these stores devote relatively little shelf space to sugary beverages.
SBT PRICE IMPACT KEY TAKEAWAYS

Tax on sugary beverages is being passed through to consumers via higher retail prices of these beverages.

Prices increased statistically significantly for nearly all beverages types subject to the tax.

Price increases differed by beverage type, with the largest increases for sodas and energy drinks.

Price increases differed by store type. Increased across store types, but largest increases in smaller grocery stores, small stores, and drug stores.